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SPECIALIZED INFORMATION SERVICES

Jack Snyder, M.D., J.D., Ph.D.
Associate Director

The Toxicology and Environmental Health Information Program (TEHIP), known originally as the Toxicology Information Program, was established 35 years ago within the NLM's Division of Specialized Information Services (SIS). Over the years TEHIP has provided for the increasing need for toxicological and environmental health information by taking advantage of new computer and communication technologies to provide more rapid and effective access to a wider audience. We continue to move beyond the bounds of the physical National Library of Medicine, exploring ways to point and link users to relevant sources of toxicological and environmental health information wherever these sources may reside. Resources include chemical and environmental health databases and Web-based information resource collections. Development of HIV/AIDS information resources became a focus of the Division several years ago, and now includes several collaborative efforts in information resource development and deployment, including a focus on the information needs of other special populations.

The SIS Web server provides a central point of access for the varied programs, activities, and services of the Division. Through this server (http://sis.nlm.nih.gov), users can access interactive retrieval services in toxicology and environmental health, HIV/AIDS information, or special population health information; find program descriptions and documentation; or be connected to outside related sources. Continuous refinements and additions to our Web-based systems are made to allow easy access to the wide range of information collected by this Division. Our usage has continued to increase over the past year with access to all toxicology and HIV/AIDS data free over the Internet.

In FY2004 SIS continued to balance efforts to enhance and re-engineer existing information resources with efforts to provide new services in emerging areas. We further developed various prototypes that rely on geographical information systems, innovative access and interfaces for consumers, and graphical display of data from information sources. Highlights for 2004 include:

- WISER, or Wireless Information System for Emergency Responders, a tool designed to provide critical chemical information quickly and conveniently on a Personal Digital Assistant (PDA) for use by emergency responders, especially during the first 24 hours in a "hot-zone";
- ITER, or International Toxicity Estimates for Risk, a resource that presents chemical risk information from authoritative groups worldwide, including the U.S. Environmental Protection Agency, the U.S. Agency for Toxic Substances and Disease Registry, Health Canada, the Dutch National Institute of Public Health and the Environment, and the International Agency for Research on Cancer, as well as independent parties whose risk values have undergone peer review;
- TOXMAP, a prototype system that uses maps of the United States to help users visually view data about chemicals released into the environment and easily connect to related environmental health information;
- ChemIDPlus Lite, a streamlined version of ChemIDPlus, that allows users to retrieve relevant substance records simply by typing chemical names or registry numbers into a single search box;
- A new Special Topic Web resource page that provides information on education, careers, and outreach programs in toxicology and environmental health;
- A new Special Topic information portal devoted to issues affecting the health and well-being of Native Americans;
- Continued support of PAHO/NLM Disaster Preparedness Information Centers in Honduras, Nicaragua, and El Salvador;
- Expanded Native American outreach initiatives; and

- Continuing minority outreach activities with the Historic Black Colleges and Universities, United Negro College Fund Special Projects, and the National Medical Association.

Resource Building

The wide range of SIS resources related to toxicology and environmental health information, HIV/AIDS information, and special populations information includes many databases that are created or acquired as well as other services and projects.

The **Household Products Ingredients Database** (http://householdproducts.nlm.nih.gov) provides a Web resource for consumers that links brand name household products (more than 4,000) with their ingredient chemicals (more than 2,000) and potential adverse health effects. Information derived from manufacturer's Material Safety Data Sheets and from SIS databases can provide answers to various questions, including: what chemicals are contained in specific brands and in what percentage; which products contain specified chemicals; who manufactures a specific brand and how can that manufacturer be contacted; what are the potential acute and chronic health effects of the chemical ingredients found in a specific brand; what other information is available about such chemicals in the toxicology-related databases of the National Library of Medicine?

In FY2004, SIS released **TOXMAP,** a prototype system that uses maps of the United States to help users visualize data about chemicals released into the environment. TOXMAP integrates data from the EPA's Toxic Release Inventory (TRI) with information about health effects, research citations, etc. found in TOXNET databases. Users can create nationwide or local area maps that show where chemicals are released into the air, water, and ground. TOXMAP also integrates data from other sources, such as demographic data from Census Bureau. TOXMAP provides region-specific links to chemical and bibliographic information.

In FY2004, SIS also released **WISER** (Wireless Information System for Emergency Responders), designed to provide critical chemical information quickly and conveniently on a Personal Digital Assistant for use by emergency responders (first 24 hours in hot-zone). The application is being developed in partnership with the Agency for Toxic Substances and Disease Registry, using ATSDR Medical Management Guidelines for Acute Chemical Exposures, which were developed to aid emergency department physicians and other emergency health care professionals who manage acute exposure following chemical incidents. The WISER prototype has focused on approximately 400 agents found in the Hazardous Substances Data Bank, and current deployment plans include a user's guide, a tutorial, evaluation methodology, and "in-field" testing.

ITER (International Toxicity Estimates for Risk) is a TOXNET data file that contains data in support of human health risk assessments. It is compiled by Toxicology Excellence for Risk Assessment (TERA) and contains over 600 chemical records with key data from the Agency for Toxic Substances & Disease Registry (ATSDR), Health Canada, National Institute of Public Health & the Environment (The Netherlands), U.S. Environmental Protection Agency, and independent parties whose risk values have undergone peer review. ITER provides a comparison of international risk assessment information in a side-by-side format and explains differences in risk values derived by different organizations. ITER data, focusing on hazard identification and dose-response assessment, is extracted from each agency's assessment and contains links to the source documentation. Among the key data provided in ITER are ATSDR's minimal risk levels; Health Canada's tolerable intakes/concentrations and tumorigenic doses/concentrations; EPA's carcinogen classifications, unit risks, slope factors, oral reference doses, and inhalation reference concentrations; maximum permissible risk levels; and non-cancer and/or cancer risk values (that have undergone peer review) derived by independent parties.

Haz-Map database, released in 2002 at http://hazmap.nlm.nih.gov, is an occupational toxicology database designed to link jobs and hazardous job tasks to occupational diseases and their symptoms. It is a relational database of chemicals, jobs, and diseases that averaged nearly 20,000 queries per month in 2004. A user may search this occupational database by chemical agent, occupational disease and by job type.

ChemID*plus* (Chemical Identification File) is an NLM online chemical dictionary, which contains nearly 370,000 records, primarily describing chemicals of biomedical and regulatory importance, and available to users on the Internet at http://chem.sis.nlm.nih.gov/chemidplus. ChemID*plus* features include chemical structure search and display for over 200,000 chemicals, and hyperlinked locator fields that retrieve data for a given chemical from other resources such as TOXLINE®, MEDLINE or HSDB® as well as EPA and ATSDR. Over 15,000 records of regulatory interest collectively known as SUPERLIST are also available and hyperlinked in ChemID*plus*. During FY2004 over 75,000 queries per month were made of this database. To assist with spelling errors, a chemical spell checker helps users retrieve substances more efficiently by chemical name. The checker, which can be instantly revised using the SIS DBMaint2 online update system, contains spelling indices for more than 1.3 million chemical names and synonyms. The database was enhanced by the addition of various new locators pointing to international resources. In FY2004, the new ChemIDplus "Light" and "Heavy" systems were released with new capabilities, including a simpler Web front-end that does not require plug-ins for structure display, and an advanced version that allows numeric searching by acute toxicity data and effect, and chemical/physical properties.

The **Hazardous Substances Data Bank** (HSDB) continues to be a highly used resource, averaging 60,000–70,000 searches each month (a 5% increase over FY2003). Increased emphasis continues to be placed on providing more data on human toxicology and clinical medicine within HSDB, in keeping with past recommendations of the Board of Regents' Subcommittee on TEHIP. In 2004, there has also been a continued emphasis on adding to HSDB new chemicals with the potential for high toxicity and high human exposure. Approximately 100 new chemicals were added in 2004, including new pesticides, drugs, and environmental pollutants. The emphasis on the addition of new chemicals will continue in the coming year. Newer sources of relevant data are being examined for incorporation into new and existing data fields within the current 4,757 HSDB records. Special summary information is being prepared to allow easier presentation of information at a health consumer level. The process of developing a new Web-based system for HSDB creation, review, and maintenance is continuing. As part of this effort, a relational HSDB database was created and a new client-server interface was programmed to allow easier updates. The new maintenance system is now poised for integration with other new features, including numeric searching and automatic indexing.

The **Toxicology Data Network** (TOXNET), NLM's information system providing database management for many of its toxicology files, has moved from a networked microprocessor environment to a UNIX–based platform (Solaris Version 2.6) on a SUN Enterprise 3000 computer. SIS continues to integrate this configuration with other database creation systems and Web access to them. Further refinements of the SIS search interface (http://toxnet.nlm.nih.gov) enhance the ability of users to simultaneously search HSDB, TOXLINE, CCRIS, Gene-Tox, DART®/ETIC, IRIS, TRI and ChemIDplus from one input screen. Based on recommendations from the Institute of Medicine, users are presented with a basic search screen with just a single input box for searching, with customized screens for more sophisticated users. These advanced features include Boolean searching and the ability to limit search terms to specific fields. Feedback from TOXNET user online surveys has provided a basis for current and future planning, and as result, SIS will implement a chemical spellchecker, automated indexing, and a virtual meta-search tool during the coming years.

Alternatives to Animal Testing (ALTBIB)—SIS continues to compile and publish references from the MEDLARS files that were identified as relevant to methods or procedures that could be used to reduce, refine, or replace animals in biomedical research and toxicological testing. Staff members search, edit, and categorize citations to create a true value-added resource in this field. The 22 bibliographies issued during the past ten years are available on the Internet through the SIS Web server, and the primary distribution mechanism for this project is now the Internet, through a new online resource named ALTBIB, which allows search access to all of the 7,595 citations organized from previous bibliographies. ALTBIB uses the TOXNET search engine, and is available at http://toxnet.nlm.nih.gov/altbib.html. A user may search by keyword, author, or one of the 16 subdivisions such as "Quantitative Structure Activity Studies."

TOXLINE (Toxicology Information Online**)** is a large NLM bibliographic database traditionally produced by merging "toxicology" subsets from secondary sources. By the end of FY2004, the database included over 3 million citations to toxicology literature dating back to 1965. In 2004, users accessed standard journal literature in toxicology and environmental health as part of the enlarging MEDLINE database, while NLM continued to add journals in the area of toxicology and environmental health to MEDLINE to cover some of the literature formerly provided by outside sources. For the non-standard journal literature in this area, SIS further enhanced a Web-based system on TOXNET that allows efficient acquisition and updating of these components. Easy access to this TOXLINE Special database and to TOXLINE Core, the standard journal literature on PubMed, is available from the improved TOXNET user interface.

DIRLINE® (Directory of Information Resources Online) is NLM's online directory of resources including organizations, databases, bulletin boards, as well as projects and programs with special biomedical subject focus. These resources provide information to users which may not be available from one of the other NLM bibliographic or factual databases. DIRLINE continues to receive a high level of use (nearly 7000 searches per month) through an interface that supports direct links to the Web sites of the organizations listed in the database, as well as direct e-mail connections. The quality and utility of the database continue to improve as duplicates have been eliminated through changes in policy and streamlining of maintenance. More than 1000 records were either revised or verified in FY2004. *Health Hotlines*, the always popular publication of health-related toll-free telephone numbers, has a recently updated Web version which also indicates the availability of Spanish speaking customer service representatives and Spanish language publications from the resources listed.

The **Toxics Release Inventory** (TRI) series of files now includes on-line files TRI86 through TRI2002. These files remain an important resource for environmental release data and are a useful complement to other SIS databases. Mandated by the Emergency Planning and Community Right-to-Know Act, these EPA databases contain environmental release data for air, water, and soil for over 600 EPA-specified

chemicals. These files are used in the new SIS R&D project using a geographical information system, TOXMAP.

The **Chemical Carcinogenesis Research Information System** (CCRIS) continues to be built, maintained, and made publicly accessible at NLM. This data bank is supported by the National Cancer Institute and has grown to over 8,000 records. The chemical-specific data covers the areas of carcinogenesis, mutagenesis, tumor promotion, and tumor inhibition.

The **Integrated Risk Information System** (IRIS), EPA's official health risk assessment file, continues to experience high usage and be very popular with the user community. EPA has had a version of IRIS on the agency's Web page since 1996, and we will continue to consider how best to integrate our Web service with what EPA provides. IRIS now contains 540 chemicals.

The **GENE-TOX** file is built directly on TOXNET by EPA scientific staff. This file contains peer-reviewed genetic toxicology (mutagenicity) studies for about 3,200 chemicals. GENE-TOX receives a high level of interest among users in other countries.

The **Registry of Toxic Effects of Chemical Substances** (RTECS®) is a data bank based upon a National Institute for Occupational Safety and Health (NIOSH) file by the same name which NLM restructured and made available for on-line searching. With our move to free Internet access to all databases, NIOSH requested that we no longer include RTECS on our system. SIS continues to use RTECS in the creation of the Hazardous Substance Data Bank.

The **Developmental and Reproductive Toxicology** (DART) database now contains over 240,000 citations from literature published since 1989 on agents that may cause birth defects. DART is a continuation of the Environmental Teratology Information Center backfile database. In FY2004, next generation DART consisted of two subsets: DART Core on PubMed, containing over 170,000 citations to the journal literature, and DART Special, containing nearly 70,000 citations to specialized resources (including meeting abstracts, books, technical reports) in this subject area. In FY2004, more than 500 new records were added, and easy access to DART Special and to DART Core was maintained at the new TOXNET interface. DART is funded by NLM, the EPA, the National Institute of Environmental Health Sciences (NIEHS), and the FDA's National Center for Toxicological Research, and is managed by NLM.

The **Environmental Mutagen Information Center** (EMIC) database contains over 24,000 citations to literature on agents that have been tested for genotoxic activity. A backfile for EMIC (EMICBACK) contains over 75,000 citations to the literature published from 1950–1991. The EPA, NIEHS, and NLM, collaborating partners in this effort, stopped compiling this special collection as of December 1999, but SIS will keep the collections as part of the TOXLINE Special database on TOXNET.

Handheld computer devices known as Personal Digital Assistants (PDAs) are increasingly being used in the fields of toxicology and environmental health. Moreover, software applications covering specialized subject matter in these fields are increasingly being made available to PDA users. In an effort to provide information on the main technical and content features of selected applications, the SIS has undertaken an ongoing Review of PDA Applications in Toxicology and Environmental Health. Individual reports in the review series are usually based on free, downloadable demos. Each individual review typically covers the following topics: general information, intended users, authorship/data source, contents, navigation, requirements, application type/price, availability, useful web links, and updates.

AIDS Information Services

NLM remains as the project manager for the multi-agency AIDS Clinical Trials Information Service (ACTIS) and the HIV/AIDS Treatment Information Service (ATIS), which now have been merged into a new service entitled "AIDSinfo." This new service will continue to provide access to AIDS-related clinical trials information (through Clinicaltrials.gov) and federally-approved treatment guidelines. The contract for this service also provides support services for Clinicaltrials.gov.

Evaluation of the AIDSinfo service (accuracy monitoring) was completed in FY2004 with the goal of assisting federal agencies in determining the future direction of the service, including the web site. The number of Live Help interactions continues to grow; users of this service find it very helpful in learning to navigate and locate information on the AIDSinfo, ClinicalTrials.gov, and SIS web sites. The usage level of the consumer fact sheets also continues to grow; the number of PDF downloads for these documents averages more than 10,000 per month, and project staff continue to evaluate options for optimizing the guidelines documents for PDAs.

Other Interagency Initiatives
In FY2004, SIS personnel continued their leadership of the Interagency Tox-to-Consumer Initiative, which completed an Inventory of Federal Government Consumer Environmental Health Resources.

Evaluation Activities
With funding from the NIH Office of Evaluation, SIS is using the American Customer Satisfaction Index (ACSI) to evaluate user satisfaction with AIDSinfo and TOXNET. Starting in November 2004, the Index provides continuous results that evaluate all aspects of the user's Web experience based on an online survey. Results are benchmarked against other federal Web sites and against private industry, and the results are published quarterly in the mainstream and trade press. AIDSinfo and TOXNET show very strong results, especially for their primary users: toxicologists, physicians, chemists and scientists. In response to feedback from the survey, TOXNET has made changes to its home page, enhanced ChemIDplus content, and uses the survey data to decide priorities for site improvement. AIDSinfo used the survey results to guide a home page redesign, improve search function, and better address the HIV/AIDS information needs of students and the public. SIS is a pioneer in using the ACSI at NIH and was instrumental in expanding its use to an additional 60 NIH web sites through a 2004–6 project funded by the Office of Evaluation.

Outreach / User Support

Special Population Web Sites: The Arctic Health web site (http://arctichealth.nlm.nih.gov), initially developed by SIS staff, is now updated by the University of Alaska at Anchorage; the Asian-American Health web site will now be updated with assistance from the Asian American Pacific Islander Health Forum, and the Native American Health web site has been released. These Web sites include relevant policy, legislative, and organizational information as well as organized links to health and environmental issues of concern to the designated population.

NLM-Tox-Enviro-Health-L listserv was created in June 2003 to send announcements-only about SIS's toxicology and environmental health programs and resources. Messages sent to the nearly 1200 subscribers include lists of new chemicals added to Hazardous Substances Databank, announcements about the new Household Products Database, and new environmental health topics for consumers added to Tox Town or MedlinePlus. The MedlinePlus Environmental Health listserv, created in FY2004, now sends messages to nearly 1400 subscribers.

In FY2003, the Toxicology Information Outreach Panel (TIOP) evolved a new strategic plan and was renamed the Environmental Health Information Outreach Panel (EnHIOP). Dr. Henry Lewis, Dean of the School of Pharmacy at Florida A&M University, became Chair of the new group. The new EnHIOP includes representation from additional Historically Black Colleges and Universities (HBCUs) as well as from Tribal Colleges and Hispanic Serving Educational Institutions. In FY2004, the panel members met twice, and individual awards of $5000 were made to 15 of the institutions participating in EnHIOP.

SIS continued its health information training programs at national and regional meetings of the National Medical Association. These programs cover all of NLM's online resources, including TOXNET, PubMed, ClinicalTrials.gov, and MedlinePlus.

A more recent addition to NLM's outreach programs is one to improve access to health-related disaster information in three disaster-prone Central American countries: Nicaragua, Honduras, and El Salvador. In FY2004, SIS continued its support of the Regional Disaster Information Center for Latin America and the Caribbean (CRID) to strengthen the capacity of these countries to collect, index, manage, store, and disseminate public health and medical information related to disasters. The main objective of this project is to contribute to disaster reduction by capacity building activities in the area of disaster-related information management. Selected libraries and information centers have been provided with the knowledge, training and technology resources in order to act as reliable information providers to health professionals and others in their countries. Through this initiative, the participating libraries and information centers have been strengthened in several areas:

- Technological Infrastructure (Internet connectivity and computer equipment)
- Information Management (Health science librarian training)
- Information Product Development (Digital Library, Web sites)

This project is also assisting SIS in developing models for collecting and exchanging health information in geographically isolated and disaster-prone environments and for handling non-traditional or unpublished literature, in this case on the health aspects of disasters.

SIS exhibited at over 40 conferences in FY2004. Several of these provided opportunities for presentations or workshops about NLM's information resources. In addition, SIS hosted the UNCFSP e-Health Conference for HBCU's, Empowerment for Health Information, in Bethesda, Maryland.

Research and Development Initiatives

To meet the mission of providing information on toxicology, environmental health, and targeted biomedical topics to the world, SIS has been developing new ways of presenting the world of hazardous chemicals in our environment to a wider audience. For example:

The ToxTown (http://toxtown.nlm.nih.gov) project explores how best to provide environmental health information to a general audience. ToxTown is an interactive guide to commonly encountered toxic substances, your health, and the environment. It uses color, graphics, sounds and animation to convey connections between chemicals, the environment, and the public's health. Tox Town is designed to provide:

- Facts on everyday locations where toxic chemicals might be found
- Information about how the environment can affect human health
- Non-technical descriptions of chemicals
- Links to authoritative chemical information on the Internet
- Internet resources on environmental health topics.

Tox Town helps users explore an ordinary town or city or farm to identify its common environmental hazards. The city, town, or farm can be toured by selecting "Location" or "Chemical" links. Locations, like the school, home or office building, can be opened for cutaway views and for detailed information about potentially hazardous chemicals that might be found there, as well as for links to environmental health resources. Tox Town also offers some resources in Spanish (http://toxtown.nlm.nih.gov/espanol/).

ToxSeek provides a virtual meta-search tool for simultaneous searching of target information systems, displaying search results from targeted systems, and harvesting related concepts. This tool can be configured to define a set of target information/search tools, which for SIS are T&EH databases and searchable resources on the web. Testing of the prototype is underway and a beta version will be ready for public release in FY2005.

The World Library of Toxicology, Chemical Safety, and Environmental Health is designed to provide a web portal to global information resources in toxicology, chemical safety, environmental health, and allied disciplines. The World Library is being designed, developed, and maintained by SIS staff, and will provide a cyberhome for an ongoing participatory project in which voluntary representatives from participating nations provide crucial input and feedback to assure credible and high-quality sources of information. With support from the Fogarty International Center, this project is scheduled to release fully developed information resources from approximately 15 nations in FY2005.

The Automated Indexing Project for selected HSDB data fields continues to identify appropriate search terms to use in comparing retrieval performance of the MeSH-indexed and non-MeSH-indexed versions of HSDB. Retrieval testing and evaluation has begun, with further work to be completed in FY2005.

In these and other new initiatives, SIS continues to search for new ways to be responsive to user needs in acquiring and using toxicology and environmental health, HIV/AIDS, and other specialized information resources.

Appendix 8: Organizational Acronyms Used in this Report

AAHSL	Association of Academic Health Sciences Libraries
ACP	American College of Physicians
ACSI	American Consumer Satisfaction Index
ACTIS	AIDS Clinical Trials Information Service
AHRQ	Agency for Healthcare Research and Quality
ALTBIB	Alternatives to Animal Testing
AMPA	American Medical Publishers Association
AMWA	American Medical Women's Association
APDB	Audiovisual Program Development Branch
ARL	Association for Research Libraries
ATIS	HIV/AIDS Treatment Information Service
ATSDR	Agency for Toxic Substances and Disease Registry
BISTI	Biomedical Information Science and Technology Initiative
BLAST	Basic Local Alignment Search Tool
BLIRC	Biomedical Library and Informatics Review Committee
BOR	Board of Regents
BSD	Bibliographic Services Division
CBIR	Content-Based Image Retrieval
CCB	Configuration Control Board
CCRIS	Chemical Carcinogenesis Research Information System
CDC	Centers for Disease Control and Prevention
CDD	Conserved Domain Database
CEB	Communications Engineering Branch
CES	(NIH) Central Email System
CGAP	Cancer Genome Anatomy Project
CgSB	Cognitive Science Branch (CgSB
ChemIDplus	Chemical Identification File
CIT	Center for Information Technology
CPT	Current Procedural Terminology
CRID	Regional Disaster Information Center for Latin America and the Caribbean
CSB	Computer Science Branch
DART	Developmental and Reproductive Toxicology
DDBJ	DNA Data Bank of Japan
DCMS	Data Creation and Maintenance Systems
DHHS	Department of Health and Human Services
DiD	Defense-in-Depth
DIRLINE	Directory of Information Resources Online
DTD	Document Type Definition
EBI	European Bioinformatics Institute
EEO	Equal Employment Opportunity
EFTS	Electronic Funds Transfer Service
EMBL	European Molecular Biology Laboratory
EMIC	Environmental Mutagen Information Center
EnHIOP	Environmental Health Information Outreach Panel
EP	Extramural Programs
EPA	Environmental Protection Agency
EST	Expressed Sequence Tag
ETICBACK	Environmental Teratology Information Center backfile

FDA	Food and Drug Administration
FIC	Fogarty International Center
FNLM	Friends of the National Library of Medicine
GEO	Gene Expression Omnibus
GPRA	Government Performance and Results Act
GSA	General Services Administration
GSS	Genome Survey Sequences
GUI	Graphical User Interface
HapMap	International Haplotype Map Project
HBCU	Historically Black Colleges and Universities
HHS	Health and Human Services
HIPAA	Health Insurance Portability and Accounting Act
HMD	History of Medicine Division
HSDB	Hazardous Substances Data Bank
HPCC	High Performance Computing and Communications
HSRProj	Health Services Research Projects
HSRR	Health Services and Sciences Research Resources
HSTAT	Health Services and Technology Assessment Text
IADL	Internet Access to Digital Libraries
IAIMS	Integrated Advanced Information Management Systems
ICs	Institutes and Centers (of NIH)
ICTV	International Committee on Taxonomy of Viruses
ILL	Interlibrary Loan
ILS	Integrated Library System
INSD	International Nucleotide Sequence Database Collaborators
IRIS	Integrated Risk Information System
IT	Information Technology
ITER	International Toxicity Estimates for Risk
ITK	Insight Toolkit
ITP	Informatics Training Program
JD	Journal Descriptor
LAN	Local Area Network
LHC	Lister Hill Center
LHNCBC	Lister Hill National Center for Biomedical Communications
LO	Library Operations
LOINC	Logical Observations: Identifiers, Names, Codes
LSTRC	Literature Selection Technical Review Committee
MEDLARS	Medical Literature Analysis and Retrieval System
MEEC	Maryland Education Enterprise Consortium
MeSH	Medical Subject Headings
MGC	Mammalian Gene Collection
MIM	Multilateral Initiative on Malaria
MIRS	Medical Information Retrieval System
MLA	Medical Library Association
MLAA	Medical Library Assistance Act
MMDB	Molecular Modeling DataBase
MMS	MEDLARS Management Section
MMTx	MetaMap Technology Transfer
MTI	Medical Text Indexer
MTMS	MeSH Translation Management System
NCBC	National Centers for Biomedical Computing

NCBI	National Center for Biotechnology Information
NCCS	NIH Consolidated Collocation Site
NCI	National Cancer Institute
NCRR	National Center for Research Resources
NCVHS	National Committee on Vital and Health Statistics
NHANES	National Heath and Nutrition Examination Surveys
NHGRI	National Human Genome Research Institute
NHII	National Health Information Infrastructure
NHLBI	National Heart, Lung, and Blood Institute
NIA	National Institute on Aging
NIAID	National Institute of Allergy and Infectious Diseases
NIBIB	National Institute of Biomedical Imaging and Bioengineering
NICHSR	National Information Center on Health Services Research and Health Care Technology
NIEHS	National Institute of Environmental Health Sciences
NIGMS	National Institute of General Medical Sciences
NIH	National Institutes of Health
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
NLM	National Library of Medicine
NN/LM	National Network of Libraries of Medicine
NNO	National Network Office
NOSC	Network Operations and Security Center
NRCBL	National Reference Center for Bioethics Literature
NSF	National Science Foundation
NTCC	National Online Training Center and Clearinghouse
OAM	Office of Administrative Management
OCCS	Office of Computer and Communications Systems
OCPL	Office of Communications and Public Liaison
OCR	Optical Character Recognition
OD	Office of the Director
OHIPD	Office of Health Information Programs Development
OMB	Office of Management and Budget
OMIM	Online Mendelian Inheritance in Man (database)
OSIRIS	Open Source Independent Review and Interpretation System
PAHO	Pan American Health Organization
PCA	Personal Computer Advisory Committee
PDA	Personal Digital Assistant
PDB	Protein Data Bank
PDF	Portable Document Format
PHS	Public Health Service
PICO	Patient/Problem, Intervention, Comparison, and Outcome
PLA	Public Library Association
PMC	PubMedCentral
PRS	Protocol Registration System
PSD	Public Services Division
QTL	Quantitative Trait Loci
RefSeq	Reference Sequence (database)
RML	Regional Medical Library
RNAi	RNA interference
RTECS	Registry of Toxic Effects of Chemical Substances

SAGE	Serial Analysis of Gene Expression
SBIR	Small Business Innovation Research
SEF	Serials Extract File
SEP	Special Emphasis Panel
SIS	Specialized Information Services
SNOMED CT	Systematized Nomenclature of Medicine Clinical Terms
SPER	System for the Preservation of Electronic Resources
SSEUS	SIS SQL Entry Update System
SSI	Scalable Information Infrastructure
STB	Systems Technology Branch
STTR	Small Business Technology Transfer Research
STS	Sequence Tagged Site
TEHIP	Toxicology and Environmental Health Information Program
TERA	Toxicology Excellence for Risk Assessment
TILE	Text to Image Linking Engine
TIOP	Toxicology Information Outreach Project
TOXLINE	Toxicology Information Online
TOXNET	Toxicology Data Network
TPA	Third Party Annotation (database)
TRI	Toxics Release Inventory
TSD	Technical Services Division
TTP	Turning the Pages
UMLS	Unified Medical Language System
UPS	Uninterrupted Power Supply
VAST	Vector Alignment Search Tool
VHP	Visible Human Project
Web-STOC	Web-Services Technology Operations Center
WGS	Whole Genome Shotgun
WISER	Wireless Information System for Emergency Responders